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SUBMISSION FOR Deputy Director/Intelligence

FROM : Acting Chief, Geographic Research, RR

SUBJECT : Possible Dam Sites for Flooding Dien Bien Phu

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**1. Problem**

The possibility is considered of a dam or series of dams being constructed by the Viet Minh for the purpose of forcing evacuation of the French Union forces at Dien Bien Phu.

**2. Physical Setting**

Dien Bien Phu is situated in an intermontane basin, approximately 20 square miles in area. Elevations in the basin floor range between 450 and 475 meters, but in the vicinity of Dien Bien Phu there are numerous small hills that rise to about 500 meters. These hills are 40 to 50 meters above the level of the Na Yen in the vicinity of Dien Bien Phu. As shown on the accompanying map (Enclosure 1), the French Union forces have utilized both lower land near the river and higher land on the hills to establish their fortifications.

Climatic data are not available for Dien Bien Phu, but the nearest weather stations (Lai Chau, 22°01'N, 103°09'E; Phong Saly, 21°42'N, 102°06'E; and Son La, 21°20'N, 105°51'E) provide analogous climate data. During May the precipitation at Dien Bien Phu probably averages between 7 and 10 inches, increasing to between 10 and 15 inches per month from June through August. Great extremes have been recorded, however, with as little as 2½ inches and as much as 25 inches for May. Highest-recorded rainfall within a 24-hour period varies from 1 to 7 inches for the nearest stations.

**3. Photographic Interpretation**

a. Aerial photographs of the Dien Bien Phu basin and watershed were examined to estimate the possibilities of dams being constructed to force the evacuation of the French-Viet Nam perimeter by flooding. Neither upstream nor downstream do favorable conditions exist. The following possibilities are considered:

- (1) Astride the Na Yen River upstream approximately 2½ air miles northeast of Dien Bien Phu (Map location (1); Photo 2-6, (1)). Here the stream cuts through a sloping gap in an eroded ridge to form a chute point some 750 feet across and some 100 feet high. To increase the height of the dam another 32 feet would involve extending the dam an additional 2750 feet. In order to maintain a head and to keep a flood from dissipating itself in the lowlands before reaching

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the defense perimeter, extensive dykes would have to be constructed. Both the dam sites and dykes would be under artillery fire. The main Viet Cong supply route from Lao Kay passes through the catchment basin and would be inundated.

(2) Three quarters of a mile down stream from the above site is another choke point (~~Map and photo location (2)~~) of similar elevation, some 250 feet across. To make it effective, a supplementary series of dams of similar height would have to be constructed to the southeast over a distance of two miles, connecting isolated high points. Again this would have to be done under artillery fire.

(3) A short distance below the above site a tributary, formed by the N. Luong and Ngu Co, enters the Ma Yen from the north (~~Map and photo location (3)~~). The site is impractical because of surrounding lowlands.

(4) Any sites further up the Ma Yen would not only inundate the main supply road but be subject to the same conditions of dissipation noted previously.

(5) On the tributary formed by the N. Luong and the Ngu Co, some 8250 feet north of the airstrip, is a choke point where a dam 1000 yards across could impound water to a depth of some 410-425 feet (~~Map and photo location (4)~~). Subsidary dykes would have to be built east and southeast of the junction with the La Non. The catchment basin is small, the Ngu Co having some 1½ miles from the hypothetical dam site, the N. Luong a similar short distance.

(6) A dam south of Dien Bien Phu would be impractical because of the broad expanse of fairly flat topography and the lack of anchor points.

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4. Conclusions

a. Construction of earthen or rock-fill dams and dykes would not be feasible during the next five months because of the fairly heavy rainfall and the resulting problems of erosion and wash-outs.

b. The possible dam sites are all within range of French artillery.

c. A dam south of Dien Bien Phu would be impractical because of the broad expanse of fairly level land and the lack of anchor points.

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d. Dams north of Bien Hoa Phu would require the construction of a number of subsidiary dykes to prevent dissipation of water into unimportant lowland areas.

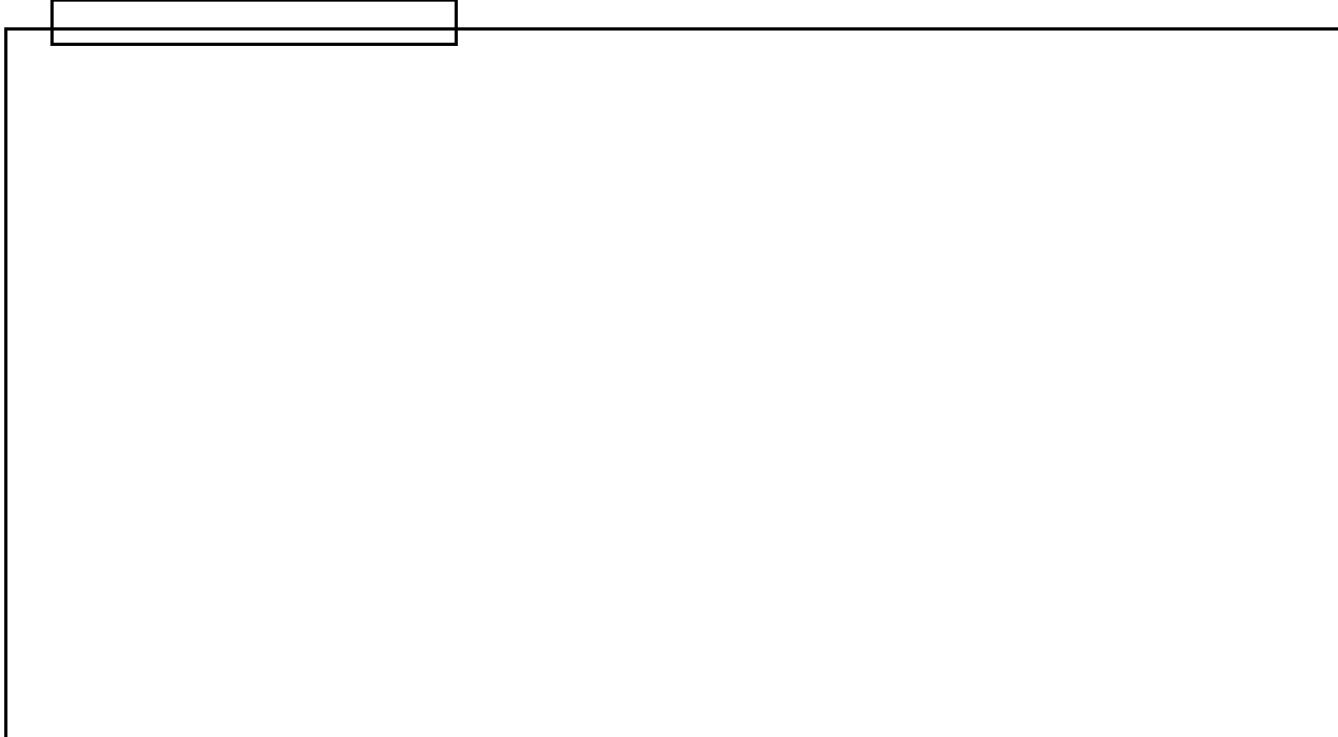
e. In view of the extensive series of dams and dykes to be constructed, the time needed to complete such an undertaking would be considerable even if no damage and delay were caused by climatic and other natural means or through French-Vietnam actions.

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